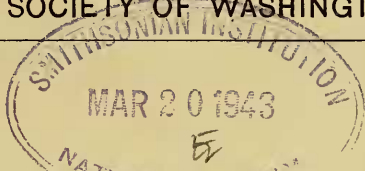


PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTONNEW SUBSPECIES OF KANGAROO RATS OF THE
DIPODOMYS ORDII GROUP FROM MONTANA
AND WYOMING.

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Kangaroo rats of the *Dipodomys ordii* group, currently placed in the single species *D. ordii*, range geographically from the plains south of the Columbia and Snake rivers in Oregon and Washington and from eastern Montana southward through the Great Basin, intermountain valleys of the Rockies, and the western part of the Great Plains into the state of Jalisco, Mexico. Within the geographic limits of this widest-ranging species of kangaroo rat there is considerable variation; this variation is indicated by the large number of subspecific names (more than twenty) proposed for the geographic variants now grouped as of the one species. Examination of specimens from the austral parts of eastern Montana and from the Red Desert of Wyoming indicates the existence of two additional geographical races, here newly named.

I am indebted to Dr. Hartley H. T. Jackson of the Federal Fish and Wildlife Service for the loan of specimens of *Dipodomys ordii luteolus* from the type locality and to Dr. Robert Hiatt for the loan of specimens from southeastern Montana. Unless otherwise indicated, all specimens are in the Museum of Vertebrate Zoology.

***Dipodomys ordii terrosus*, new subspecies.**

Type.—Male, adult, skin with skull, no. 93477, Mus. Vert. Zool.; Yellowstone River, 5 miles west of Forsyth, 2750 feet, Rosebud County, Montana; obtained June 2, 1940, by J. R. Alcorn, original no. 1528.

Range.—Eastern and southern Montana.

Diagnosis.—Size: large (see measurements); body long and heavy; hind feet long. Color: dark; upper parts near (*h*) Ochraceous-Tawny (capi-

talized color terms after Ridgway, Color Standards and Color Nomenclature, Washington, D. C., 1912) mixed with black; black arietiform facial markings distinct; patch of hair on outer side of forelimbs tipped with ochraceous-buff, becoming plumbeous basally; white hip-stripe not continuous from underparts of body to base of tail, or, if continuous, greatly constricted in width; dorsal tail-stripe dark brownish to blackish. Skull: large; zygomatic process of maxilla broad; auditory bullae greatly inflated; upper incisors long; rostrum broad.

Comparisons.—From *Dipodomys ordii luteolus*, known to me by specimens from the type locality (Casper, Wyoming) and from Kennedy and one mile northwest of Gavin, Nebraska, *terrosus* differs as follows: body longer and heavier, hind feet longer, upper parts markedly darker resulting from more black and red, hip-stripes less prominent, skull larger in every measurement taken except interorbital breadth, and averaging larger in this measurement, auditory bullae more inflated, zygomatic process of maxilla broader, and upper incisors longer.

From *D. o. richardsonii*, known by specimens from El Paso and Bent counties, Colorado, *terrosus* differs: size larger, upper parts more heavily mixed with black, dark ventral tail-stripe extending farther distally, and skull averaging larger in all measurements except greatest breadth which is the same.

From topotypes of *D. o. montanus* and other specimens from south-central Colorado, *terrosus* differs: size larger, upper parts more reddish, skull averaging larger in all measurements, auditory bullae more inflated, incisors longer, and posterior apex of interparietal rounded rather than pointed.

From *D. o. columbianus* from Bingham County, Idaho, and from topotypes of *D. o. utahensis*, *terrosus* differs in larger size and more reddish coloration; in every cranial measurement taken, *terrosus* is larger by at least 2 per cent.

From *D. o. evexus* from Salida, Chaffee County, Colorado, *terrosus* differs, as far as can be judged from Goldman's description (Journ. Washington Acad. Sci., vol. 23, p. 464, 1933), in longer body and hind feet; darker coloration of upper parts; some hairs of forelimbs pigmented rather than white; ventral tail-stripe brownish for more than proximal two-thirds of length of tail; larger skull, for example occipitonasal length 39.2 mm. (38.3–39.9) in 7 adults of *terrosus* as contrasted with 37.3 in the type of *evexus* and all other corresponding measurements larger than those given for the type of *evexus*.

From *D. o. nevilis*, from 5 miles west of Naturita, Montrose County, Colorado, *terrosus* differs, judging from Goldman's description (*op. cit.*, p. 470), in shorter hind feet, slightly darker upper parts, and a longer skull which is broader across the maxillary arches but narrower across the bullae.

Comparison with the race *priscus* is made below in the account of that form.

Measurements.—Three adult males (type and two topotypes in that order): Total length, 266 mm., 282, 274; length of tail, 143, 157, 149;

length of hind foot, 43, 44, 43; weight (in grams), 71.8, 78.5, 75.5; basal length of skull, 28.4, 28.7, 28.9; length of nasals, 15.5, 14.7, 14.5; greatest breadth, 25.8, 25.4, 25.3; maxillary breadth, 22.8, 22.0, 22.1; interorbital breadth, 13.2, 13.6, 13.0. Cranial measurements are taken in the same way as illustrated by Hall and Dale (Occas. Papers Mus. Zool. Louisiana State Univ., no. 4, p. 50, 1939).

Remarks.—*D. o. terrosus* is a large-sized, dark-colored, peripheral race which inhabits the more austral parts of Montana east of the crest of the Rocky Mountains. These kangaroo rats live in the *Artemisia* and short-grass prairie at the edge of the juniper belt. Locally these rats are common, as evidenced by their burrow openings, tail and foot marks, and runs. J. A. Allen in "Notes on the natural history of portions of Dakota and Montana territories, . . ." (Proc. Boston Soc. Nat. Hist., vol. 17, p. 42, 1875) writes under the heading of *Dipodomys ordii*: "The most abundant mammal met with in the valley of the Yellowstone; much less common on the Great Porcupine Creek and in the valley of the Musselshell. It seems to prefer the driest situations, burrowing beneath the cacti and in bunches of sage brush everywhere." In suitable habitat, the species ranges northward to within 125 miles of the Canadian Border.

As may be noted from the above comparisons, *terrosus* differs least from, and thus is most similar to, the races *richardsonii* and *nexilis*, the nearest known records of occurrence of which are in eastern and west-central Colorado, respectively. It is separated geographically from these races by the range of the paler-colored *luteolus* and *priscus* of Wyoming. The two specimens from Powderville show approach to *luteolus* in shorter body, slightly lighter upper parts, and smaller skull. These specimens are not fully adult and adult specimens from this area may prove to be typical *terrosus*.

Specimens examined.—Total number, 13, from the following localities in Montana: *Garfield County*: Sand Creek, lat. 47° 15', long. 106° 55', [near] Jordan, 2. *Musselshell County*: Harvey Ranch, Melstone, 2. *Rosebud County*: Yellowstone River, 5 mi. W. Forsyth, 2750 ft., 6. *Yellowstone County*: Billings, 1. *Powder River County*: Powderville, 2 (coll. Montana State College, Museum of Zoology).

Dipodomys ordii priscus, new subspecies.

Type.—Female, adult, skin with skull, no. 89119, Mus. Vert. Zool.; Kinney Ranch, 21 miles south of Bittercreek, 7100 feet, Sweetwater County, Wyoming; obtained September 16, 1939, by Donald T. Tappe, original no. 766.

Range.—Known only from the type locality, but probably occurs throughout much of the Red Desert of southwestern Wyoming and northwestern Colorado.

Diagnosis.—Size: large (see measurements); body long but weight medium. Color: pale; upper parts Light to Pale Ochraceous-Buff mixed with blackish; forelimbs white; white supraorbital patch large; dorsal tail stripe light grayish brown. Skull: large; auditory bullae greatly inflated; interorbital region broad.

Comparison.—From *D. o. terrosus*, *priscus* differs in smaller size, except that the length of the tail averages about the same, strikingly paler coloration of the upper parts resulting from less black and red which is of a markedly lighter tone, forelimbs without ochraceous-buffy patch of hair, lighter dorsal tail-stripe, smaller skull in all parts measured except interorbital breadth, less inflated auditory bullae, narrower and relatively longer rostrum, and narrower zygomatic process of maxilla.

From *D. o. luteolus*, *priscus* differs in longer body, slightly paler upper parts, larger skull (on the average), more inflated auditory bullae, and longer rostrum.

From *D. o. richardsonii*, and from *nezilis* as described by Goldman (*op. cit.*, p. 470), *priscus* differs in the same way as from *terrosus*.

From *D. o. evexus*, relying on Goldman's description (*op. cit.*, p. 468), *priscus* differs in longer body, slightly paler upper parts, and a larger skull. *D. o. priscus* differs in this same way from topotypes of *montanus*, *utahensis*, and *columbianus*, but to an even greater degree.

Measurements.—Average and extreme measurements of 4 adult females: total length, 269 mm. (264–274); length of tail, 150 (145–152); length of hind foot, 41.8 (41–43); weight (in grams), 64.8 (61.2–67.2); basal length of skull, 27.5 (27.0–27.8); length of nasals, 14.7 (14.1–15.0); greatest breadth, 24.9 (24.6–25.2); maxillary breadth, 21.3 (20.9–21.9); interorbital breadth, 13.3 (13.2–13.4). Measurements of two young adult males (wear on the fourth upper premolar has not quite obliterated the anterointernal notch): Total length, 251, 269; length of tail, 146, 147; length of hind foot, 42, 41; weight (in grams), 55.6, 62.3; basal length of skull, 26.7, 27.5; length of nasals, 13.7, 14.7; greatest breadth, 24.0, 24.0; maxillary breadth, 19.9, 20.5; interorbital breadth, 12.9, 13.5.

Remarks.—*D. o. priscus* is a large, pale race closely resembling *luteolus* and *evexus*. It is more or less isolated from *luteolus* by the Green, Ferris, Seminole, and Medicine Bow mountains in central Wyoming and from *evexus* by the higher parts of the Rocky Mountains, including the Continental Divide. Other specimens of *D. ordii* have been recorded from the Red Desert region of Wyoming and Colorado (Cary, N. Amer. Fauna, nos. 33 and 42), but it is not known whether these are referable to the race *priscus*. Cary, in commenting on this species of kangaroo rat from the Red Desert area of northwestern Colorado (N. Amer. Fauna, no. 33, pp. 140–141, 1911) says: "It occurs . . . over parts of the sandy sage plains. . . [One] large colony occupied a sandy strip of country abounding in blow-outs, and the burrows were either in the banks of these or beneath bushes of *Atriplex confertifolia* or *Grayia spinosa*."

Specimens examined.—Total number, 14, all from the type locality.